Mine Examination Report
November 1, 1978

Confidential Claim Retracted
Authorized by: SE
Date: 6/26/13

The Anaconda Company
Jackpile-Paguate Mine
Pueblo of Laguna Uranium Leases 1 and 4
Laguna Indian Reservation
Townships 10 and 11 North, Range 5 West, NMPM
Valencia County, New Mexico

U. S. Geological Survey
Conservation Division
Area Mining Supervisor
Southern Rocky Mountain Area
P. O. Box 26124
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November 7, 1978

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November 1, 1978, the writer inspected the underground mining operations at The Anaconda Company's Jackpile-Paguate Mine. He was accompanied throughout the inspection by Mr. David Wirtz, Mining Engineer with Anaconda. The purpose of the inspection was the examination of the active mining areas.

P-15/17 Mine Project

The P-15/17 Mine Project was not inspected at this time because there has been no activity since the last inspection of June 28, 1978. At that time, Anaconda was preparing to conduct pump tests on one of three test wells to determine if the well could satisfy the project's water requirements. These pump tests have been completed, and the well's yield is adequate. Anaconda is now applying for the various permits necessary for completion of the water well.

According to Anaconda personnel, the contract for the construction of the P-15/17 adit entry is almost complete and bids will be accepted in the near future. Anaconda will soon submit a modification of the approved mining and reclamation plan for the P-15/17 Mine Project to the Area Mining Supervisor for approval. This modification reportedly involves minor changes in the layout of the underground workings and possibly some additional underground facilities.

PW2-PW3 Adit Project

At the time of the June 28, 1978, inspection, two adits had each been driven about 50 feet into the pit highwall, and crosscuts had been started about 30 feet inby each portal. These adits have now been connected, and the majority of the mining is occurring in the north adit which is about 150 feet inby the portal. There are only two working faces in the mine, and operations consist of driving crosscuts to the ore zone boundaries. After modification the Alpine Miner (continuous mining machine) was returned to the north adit to drive the adit and crosscuts; however, it has subsequently broken down, and mining is again being accomplished by conventional drilling and blasting with diesel LHD equipment. Split-set rock bolts with wire mesh are the primary means of ground support, but timber stulls are used where necessary. The mine ventilation system has not changed except that a ventilation circuit has been established by connecting the adits.

The PW2-PW3 Project is still operating one 8-hour shift per day, 5 days per week, but the mining personnel have been reduced to two miners and one miner's helper. For the month of September 1978, ore production was 1,679 tons with an average grade of 0.198% U_3O_8. As of this inspection, the inactive south adit was in waste, and the active north adit was still in ore.

P-10 Mine

The P-10 Mine is the largest producing underground operation at the Jackpile-Paguate Mine. It contains both the P-10 and P-7 workings which are connected by an underground incline. The mine operates two 8-hour shifts per day, 5 days per week, and total employment including surface personnel is about 220 hourly and salaried employees. September 1978 production was 13,363 tons of ore averaging 0.159% U_3O_8 and about 5,500 tons of waste.

The writer did not inspect the P-7 workings at this time because the majority of the June 28, 1978 inspection was spent in this section of the mine. The P-7 area has only three or four active stopes including both development and pillar extraction operations (see attached map). Mining is accomplished using conventional drilling and blasting, but LHD units are used in both development and pillar extraction operations to move the muck to the ore-passes. Where necessary, the LHD units are used in conjunction with slushers.

The P-10 area has fifteen to twenty-five active stopes including both development and pillar extraction operations. The majority of the ore production comes from this area, and generally four to five pillar extraction stopes are in operation at all times. Mining is accomplished using conventional drilling and blasting, but only slushers are used in this section of the mine due to the wetter conditions. The writer inspected the 1205 and 1206 stopes where pillars are being developed on 30-foot centers in ore averaging about 0.30% U_3O_8. The miners had finished drilling various faces and were preparing to load the rounds for the noon blast. The writer also toured the 1800 area stopes. Pillar extraction has just begun in the 1802 stope and the 1801 stope is being prepared for pillar extraction which should commence when the 1802 operations are complete. Preparation for pillar extraction consists of cleaning up the stope and longhole drilling for additional ore information.

The writer also examined track haulage and raise development in the P-18 area. This area is located south of the P-7 workings and northwest of the P-10 workings. At the last inspection, the 1500 track drift from the P-7 area and the 3600 track drift from the P-10 area were being driven by conventional methods under the P-18 ore zones in preparation for stope, or ore level, development. These drifts have now been connected, and raises, both orepasses and manways, are being driven into the overlying ore zones from the drifts. All of the raises are being driven by conventional methods and lined with wood cribbing. Stope development will be conducted from the P-7 workings using LHD equipment. The writer examined the 3606 raise where a miner had just completed barring down and was beginning to install the next lift of cribbing.

The writer did not examine the 0020 mining operations, but the status of the operations was discussed with Mr. Wirtz. This area is of some interest because of its location about 300 feet below State Highway 279 (see attached map). As previously discussed in the writer's report July 19, 1978, the 0020 area consists of north and south ore zones which are being mined through a drift driven directly to the zones from the P-10 decline. Mining is accomplished by modified room-and-pillar stoping with conventional drilling, blasting and slushers, but muck is transported directly to the surface through the decline using diesel powered Getman underground trucks. Mining of the south ore zone has taken longer than anticipated because there was more ore than indicated by surface drilling. Approximately 20 feet of floor had to be extracted, and the stope was caving during the pillar extraction operations. South zone mining has now been completed, and the caving has stabilized at a height of approximately 50 to 70 feet in the Cretaceous Dakota Sandstone. A shale member at or near the Dakota-Morrison contact causes the caving to form a natural arch and stop. Anaconda has established a surface survey grid of six stations above the 0020 area (see attached map) and is monitoring this grid to detect any surface subsidence that could affect Highway 279. The north ore zone is now being developed, and pillar extraction by the same methods as those used in the south zone will commence immediately afterwards.

After the inspection, the writer briefly discussed percentage extraction (mining recovery) with Mr. Wirtz. Mr. Wirtz pointed out that percentage extraction depends directly on the amount of ore reserves used in the calculations. For example, if ore reserves estimated from surface drilling are used, percentage extraction is almost always near 100%, and possibly greater than 100%, because more ore is almost always found by underground development than by surface drilling. On the other hand, if ore reserves estimated from underground longhole drilling or stope development are used, percentage extraction may be as low as 50% in some areas. The Geological Survey will soon request percentage extraction calculations from Anaconda for an investigation of this matter.

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Original to: Superintendent, Southern Pueblos Agency, BIA
cc: Governor, Pueblo of Laguna
Chief, BOMO, CD, USGS
Through: Conservation Manager, CR, CD, USGS
Files (No. 1 and No. 4)